

MPEG ENCODER WITH TM5 RATE CONTROLLER 100

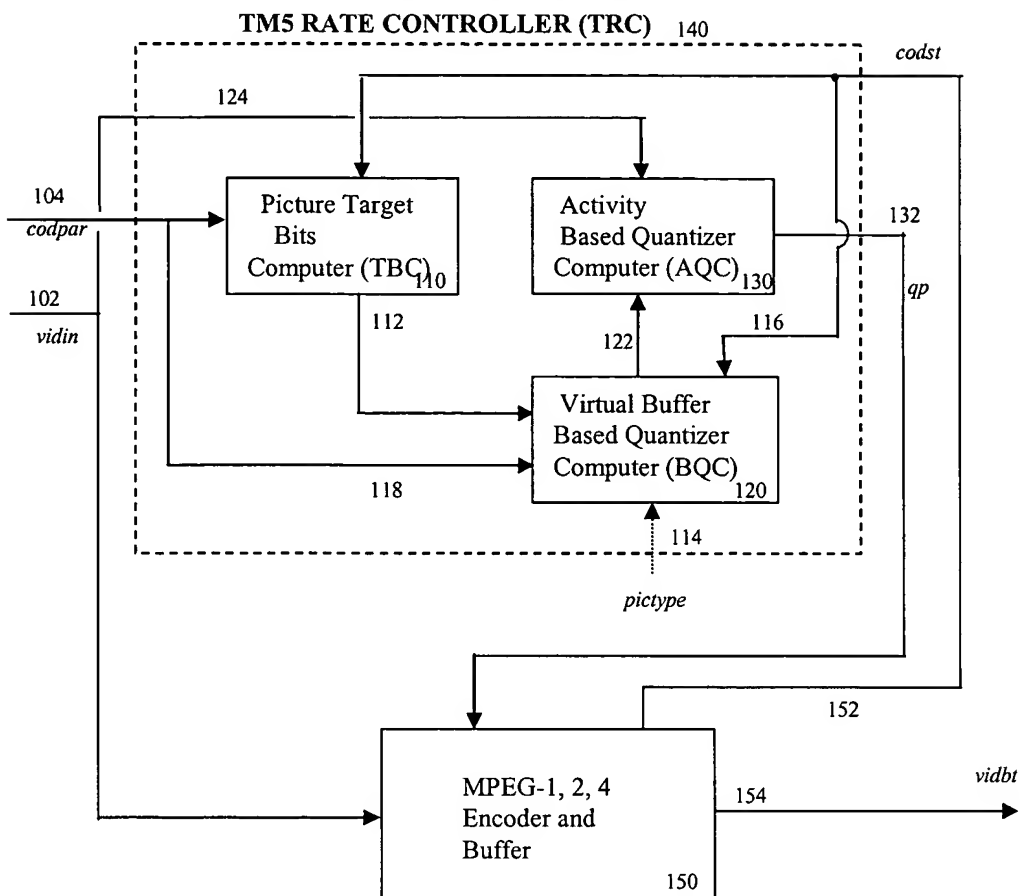


FIG. 1

Target Bits Computer 110

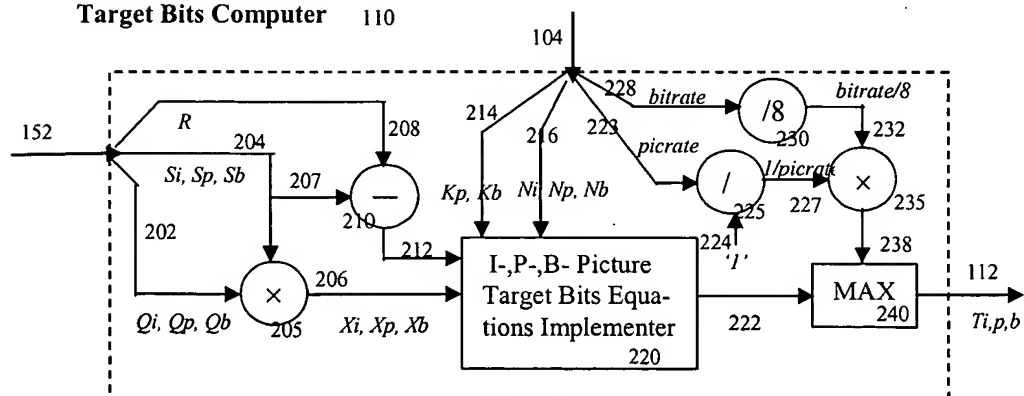
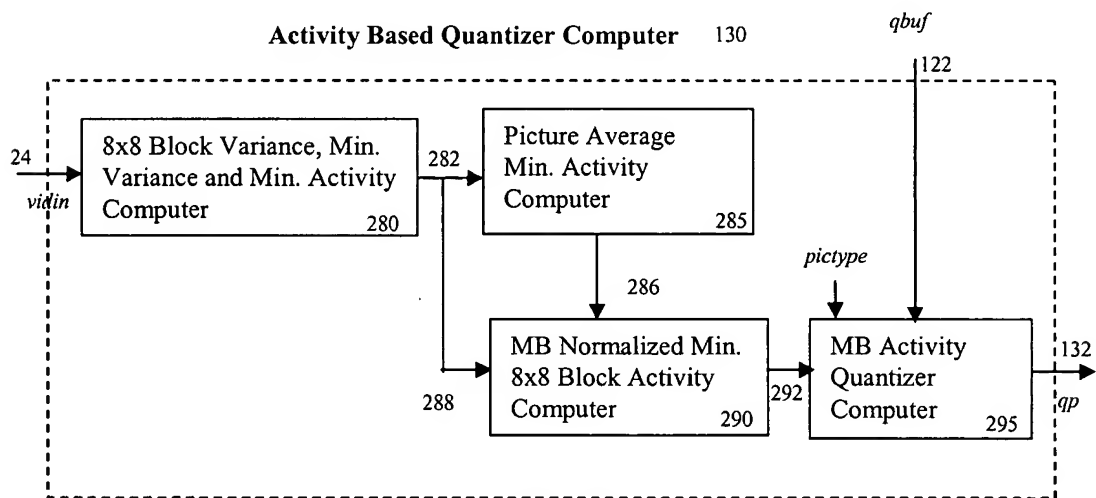
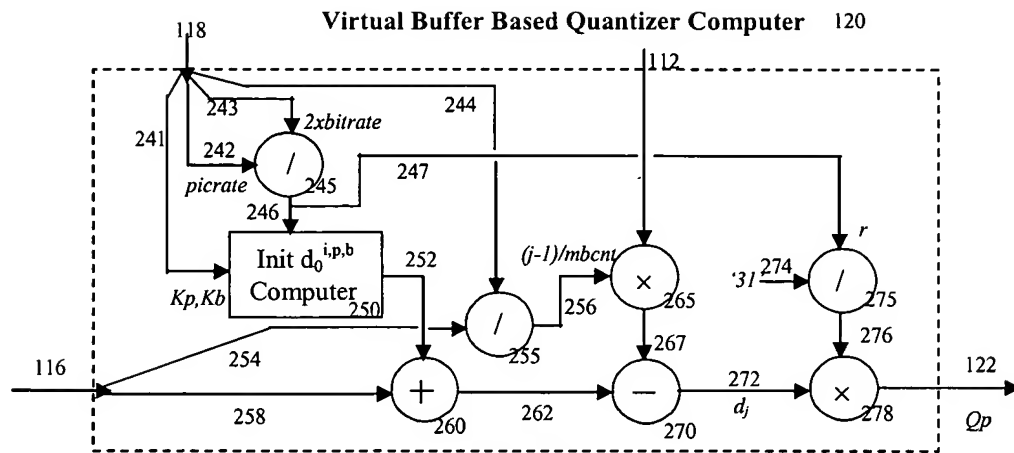


FIG. 2A



H.264/MPEG-4 AVC ENCODER WITH RQC RATE CONTROLLER 300

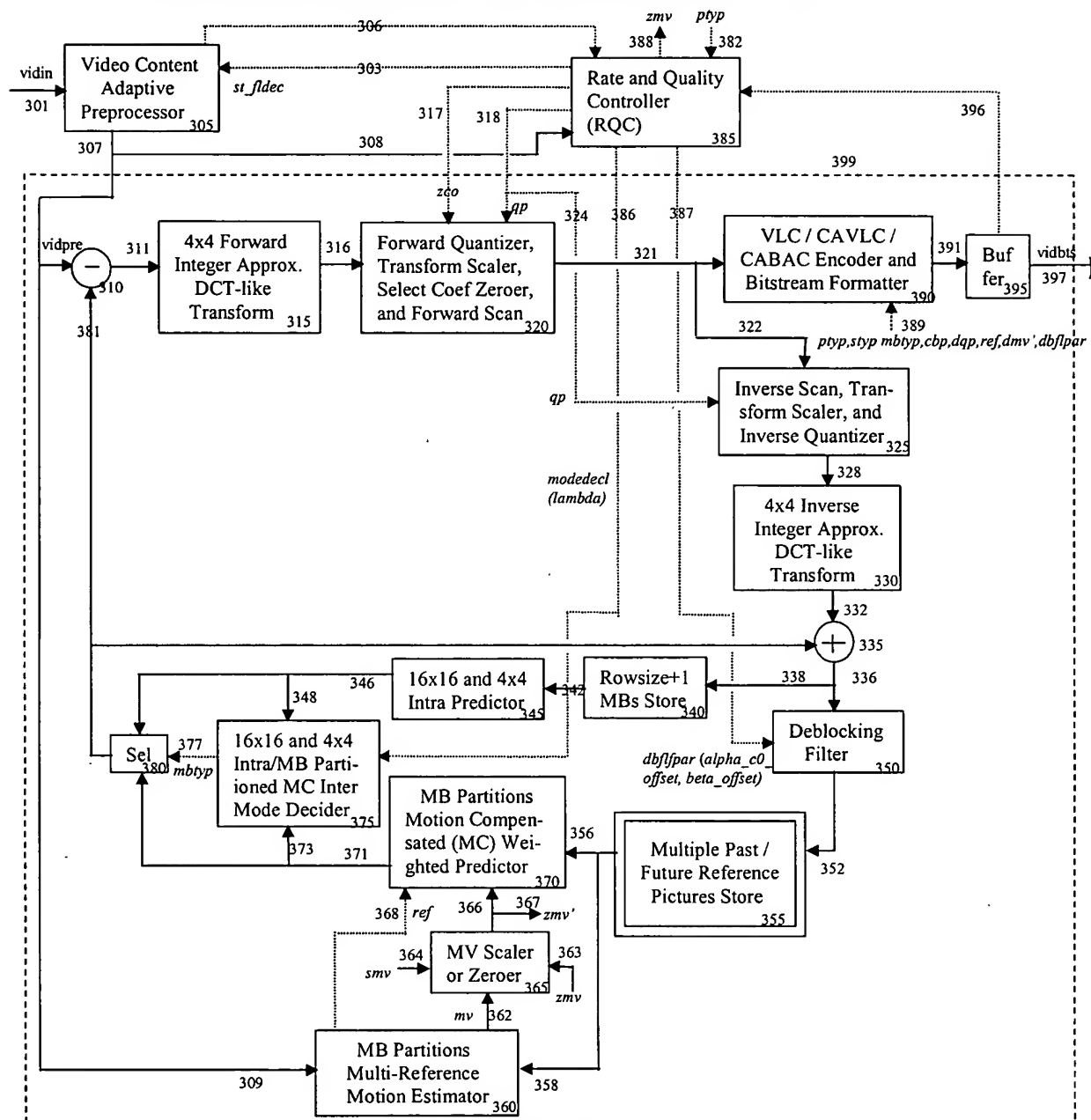


FIG. 3

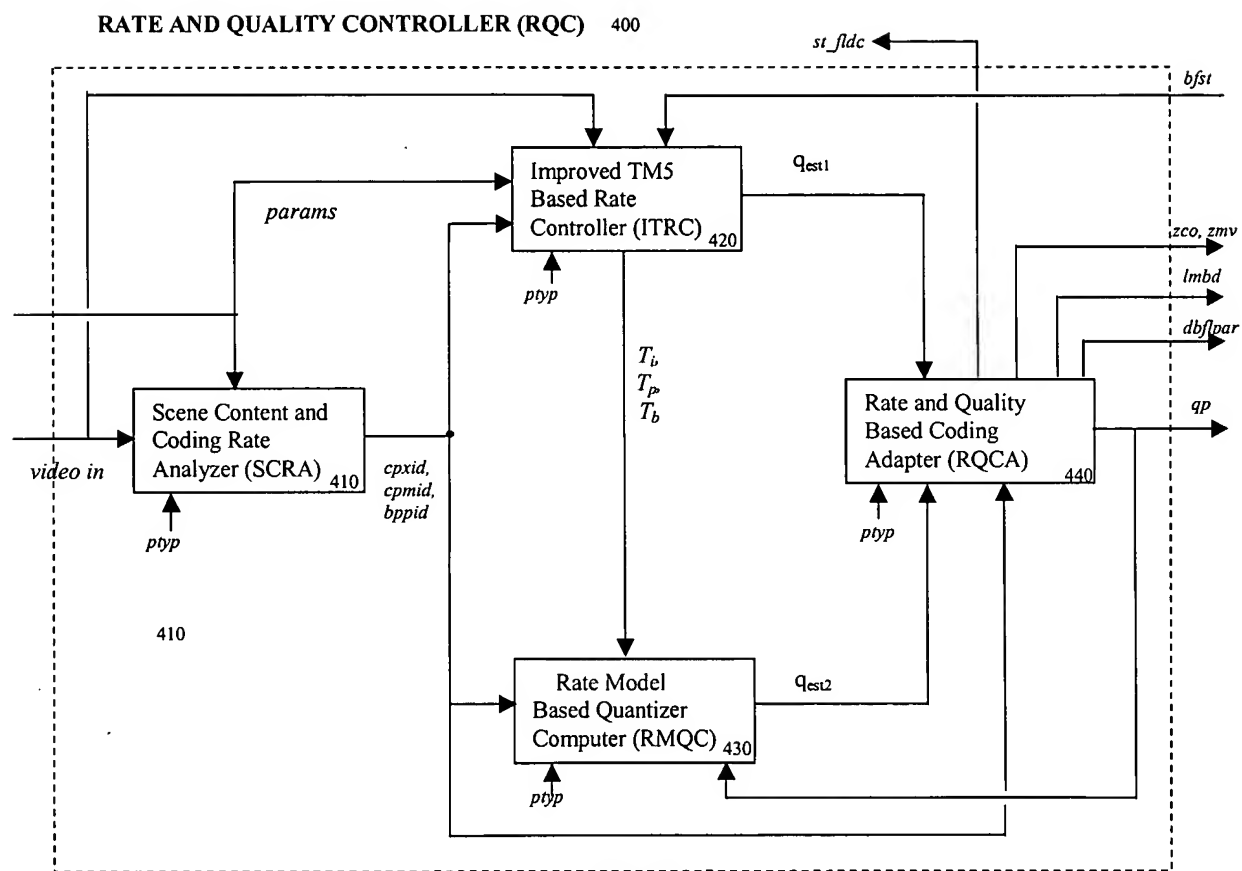


FIG. 4

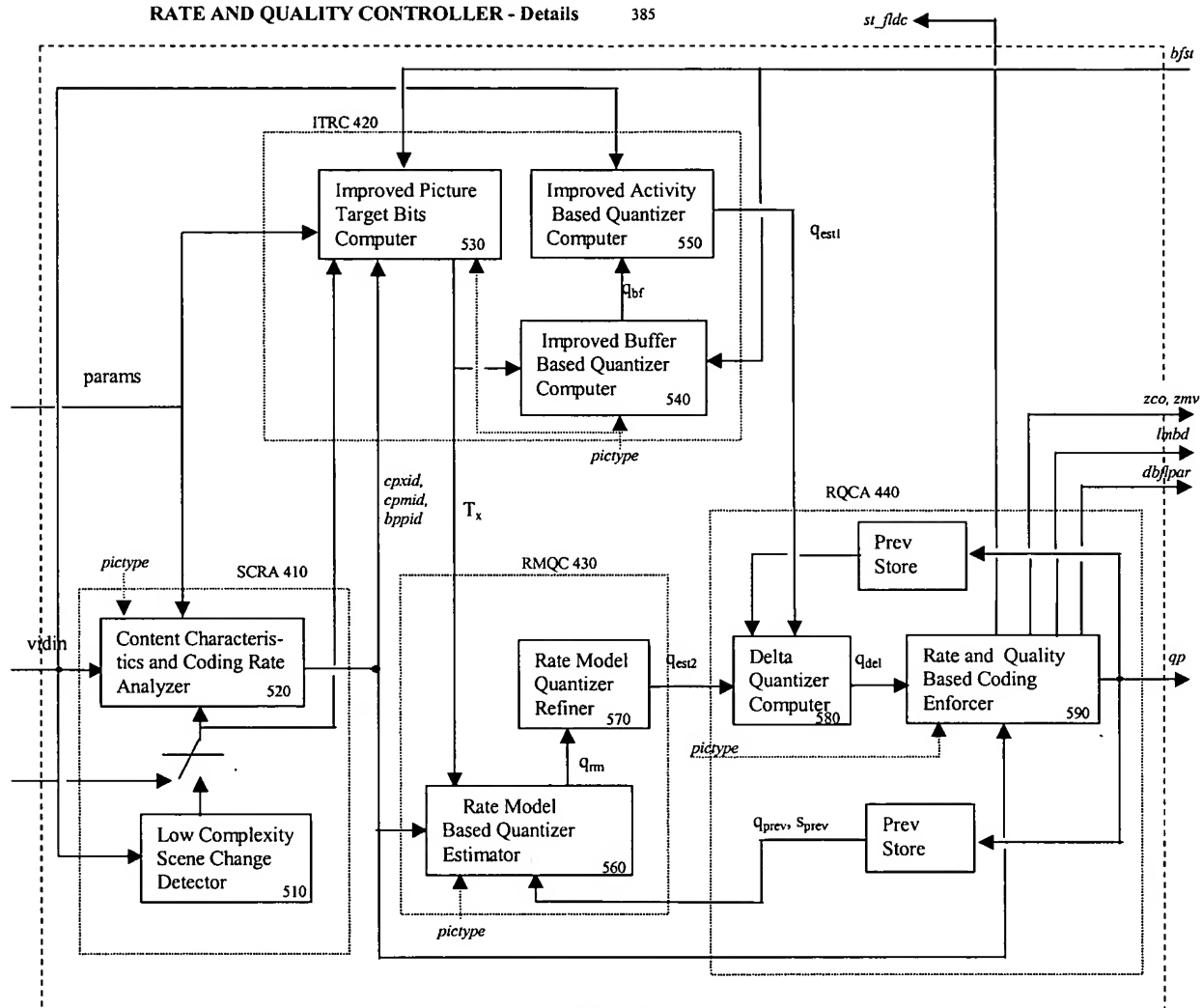


FIG. 5

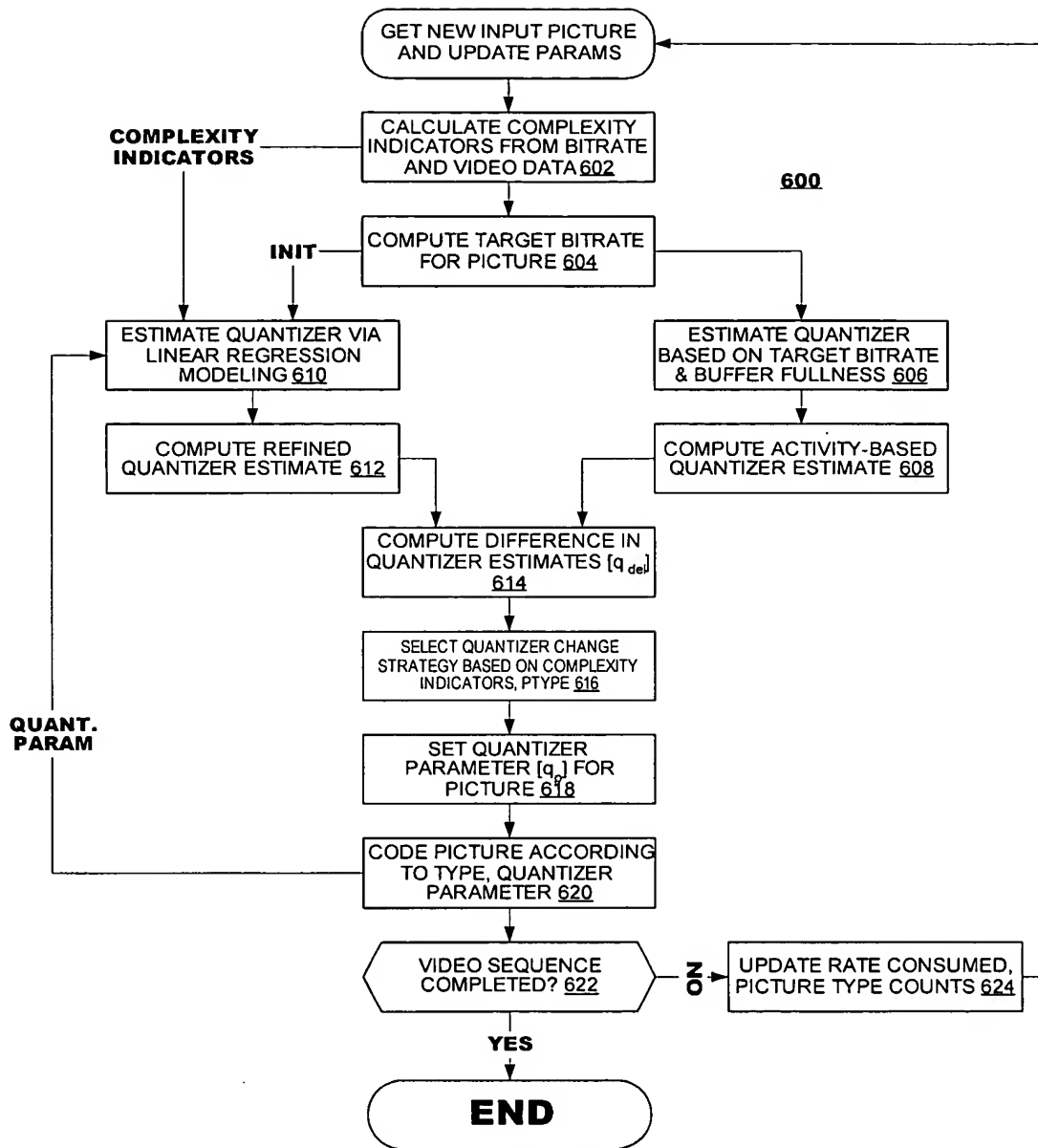


FIG. 6A

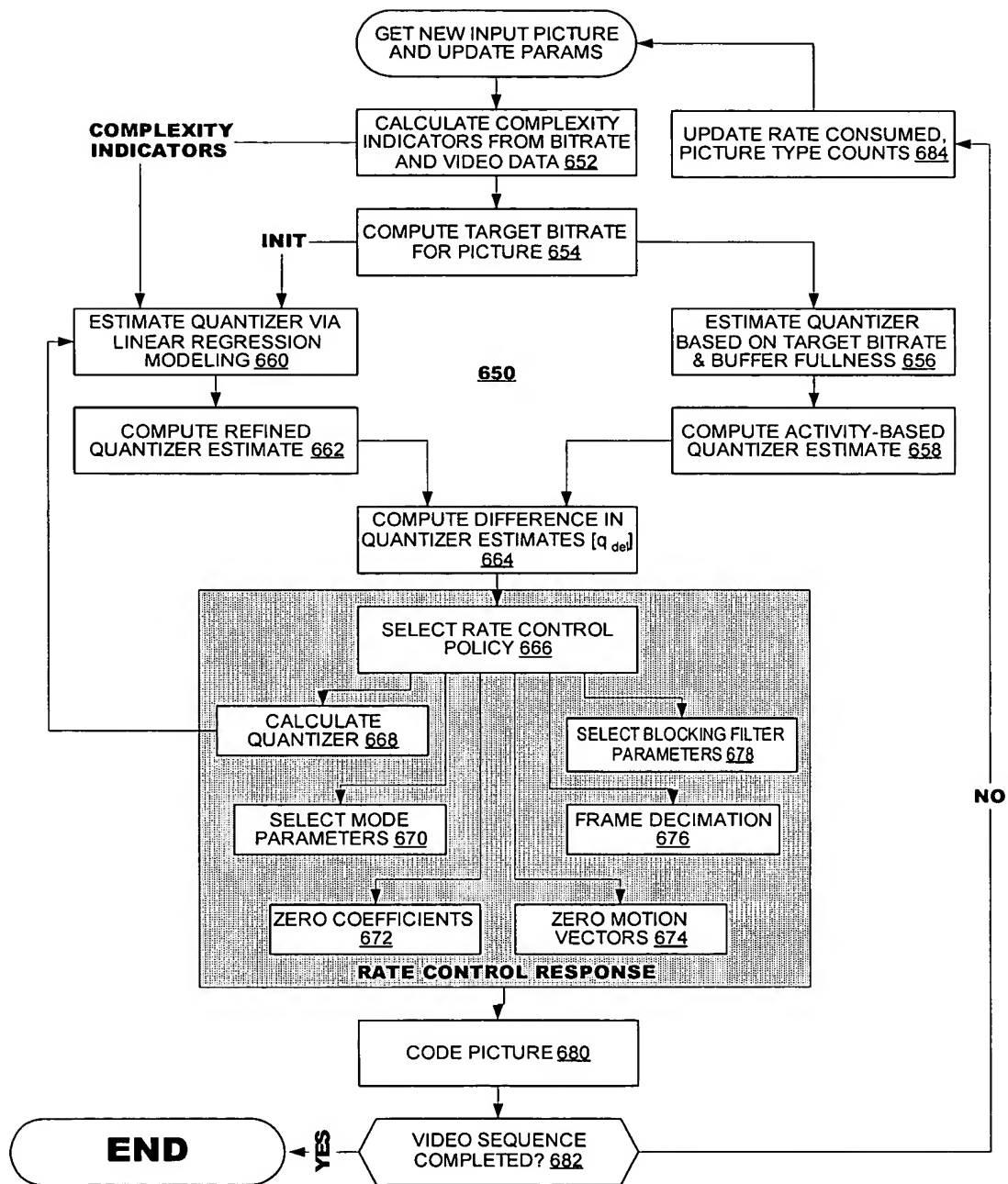


FIG. 6B

700—Video frames coding order when employing 2 B-frame coding structure

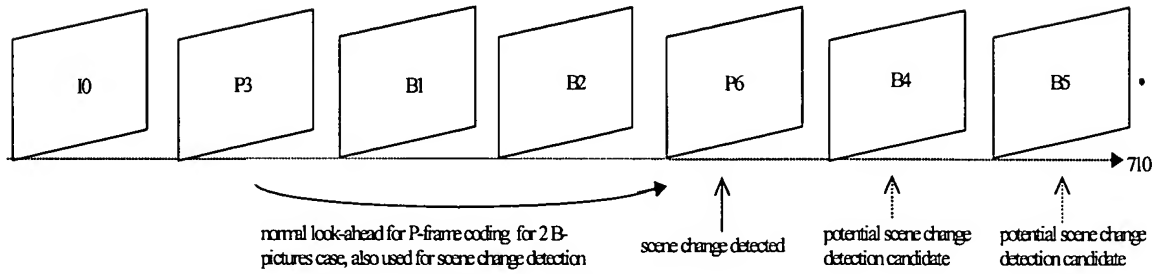


FIG. 7

Low Complexity Scene Change Detector 510

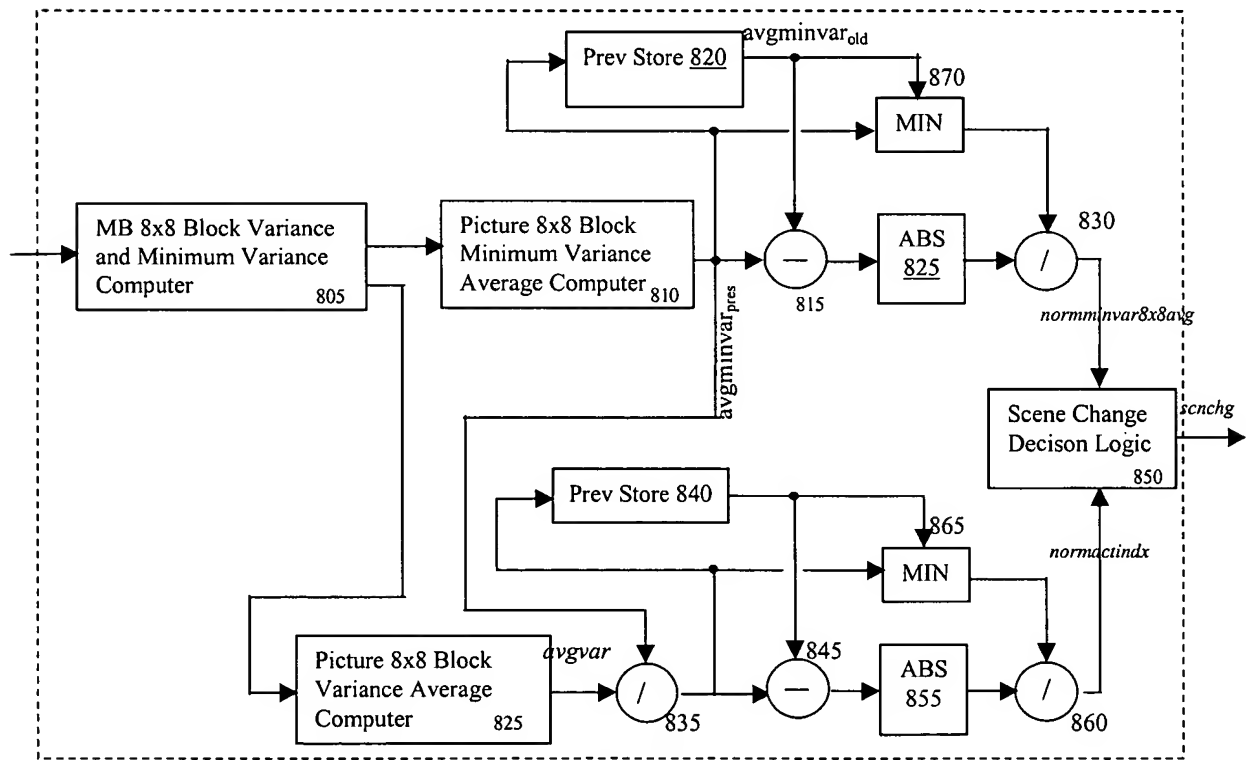


FIG. 8A

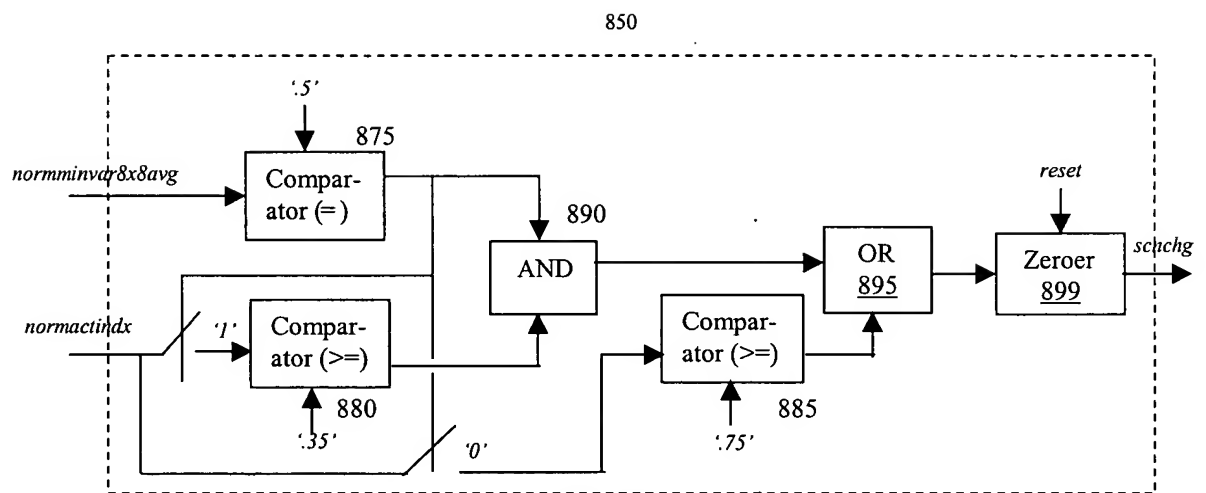


FIG. 8B

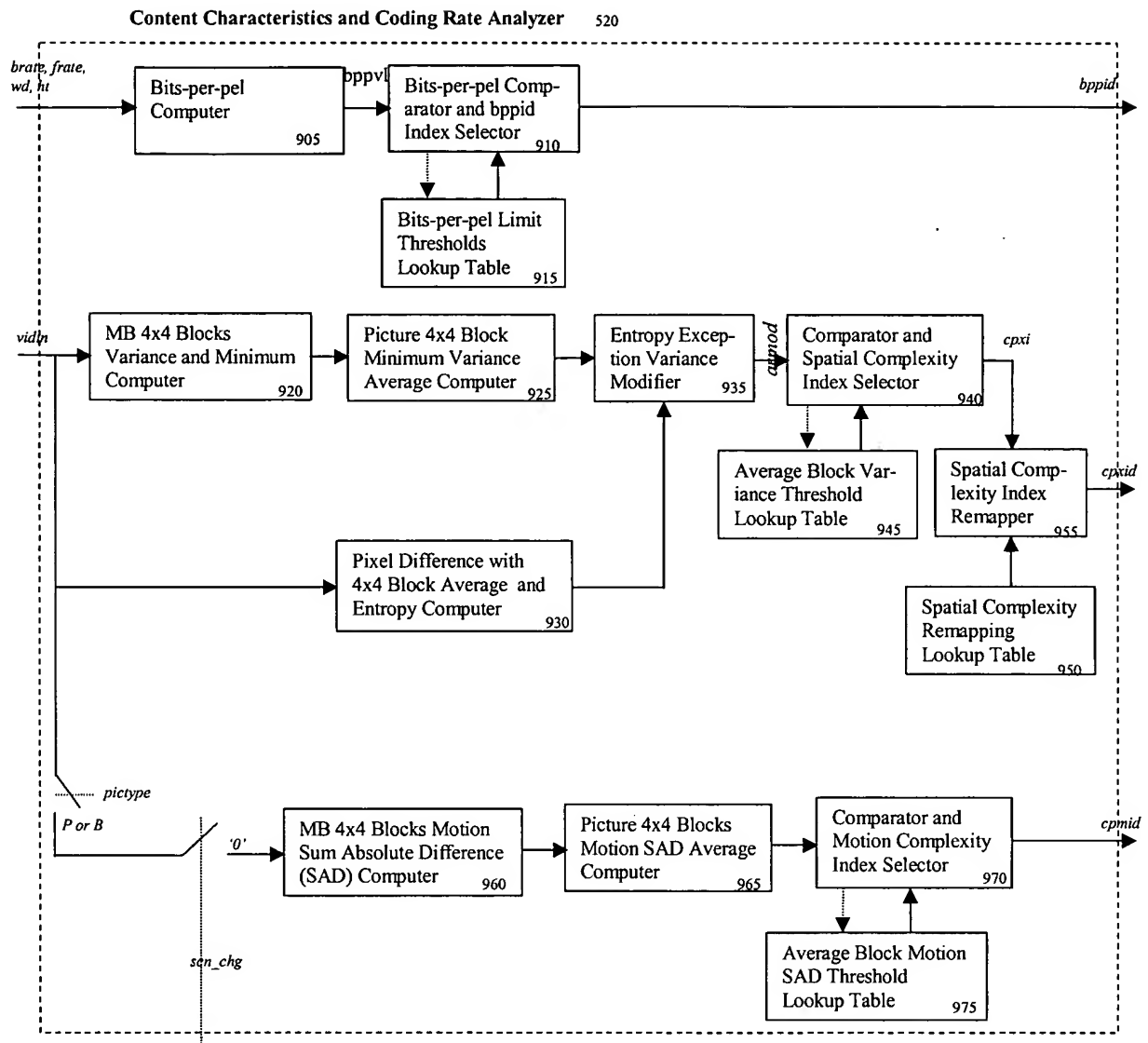


FIG. 9

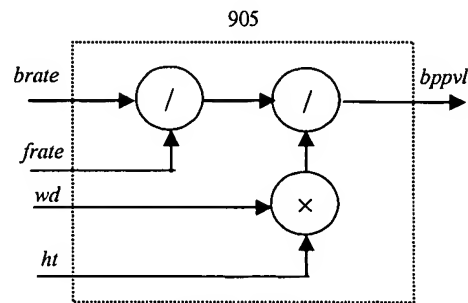


FIG. 10A

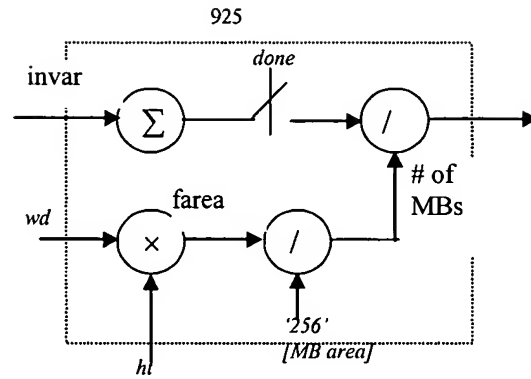


FIG. 10B

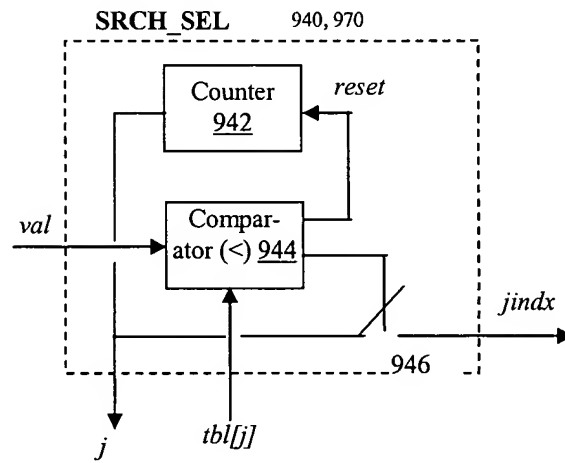


FIG. 10C

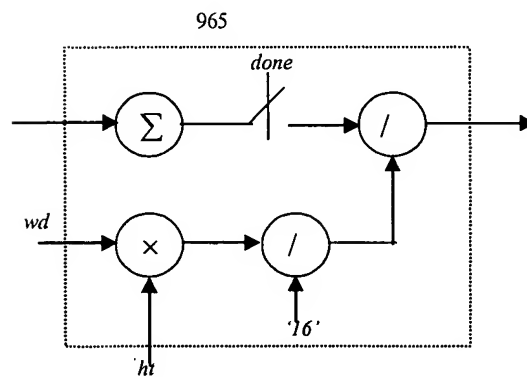


FIG. 10D

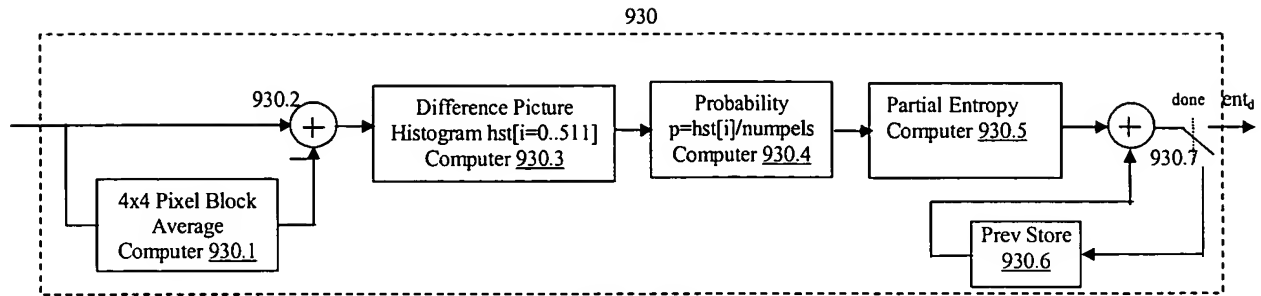


FIG. 11A

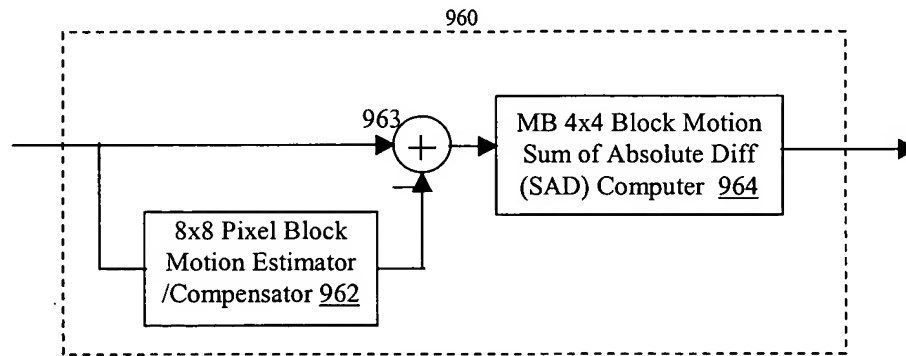


FIG. 11B

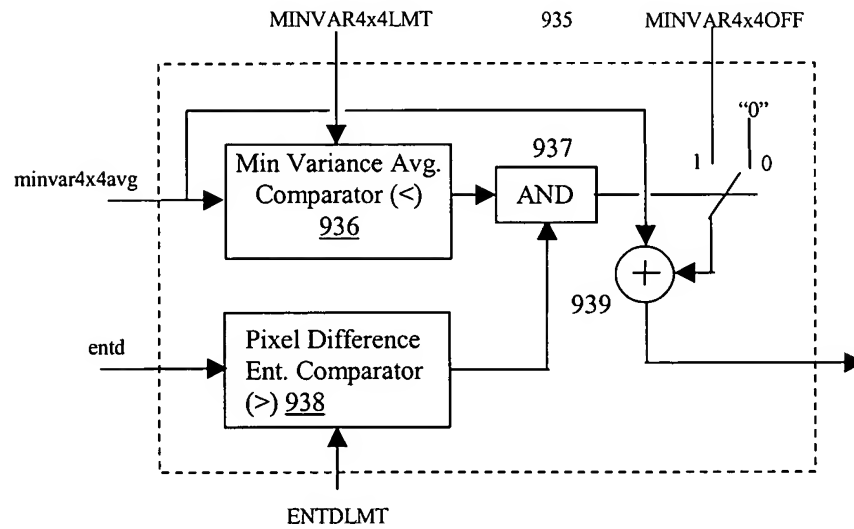


FIG. 11C

BBPID								
0	1	2	3	4	5	6	7	8
0.01052	0.02104	0.04208	0.08416	0.16832	0.33664	0.67328	1.34656	2.69312

FIG. 12A - 915

CPID											
0	1	2	3	4	5	6	7	8	9	10	11
1.0	2.0	4.5	8.5	12.5	17.0	22.0	28.0	34.0	41.0	50.0	60.0

12	13	14	15	16	17
71.0	84.0	100.0	120.0	145.0	177.0

FIG. 12B - 945

CPXID								
0	1	2	3	4	5	6	7	8
1	3	5	7	9	11	13	15	17

FIG. 12C - 955

CPMID				
0	1	2	3	4
32.0	64.0	112.0	184.0	280.0

FIG. 12D - 975

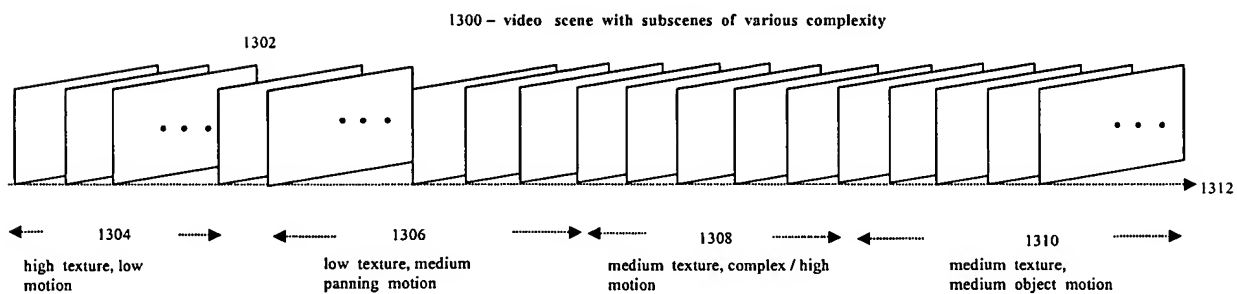


FIG. 13

Improved Picture Target Bits Computer 1400

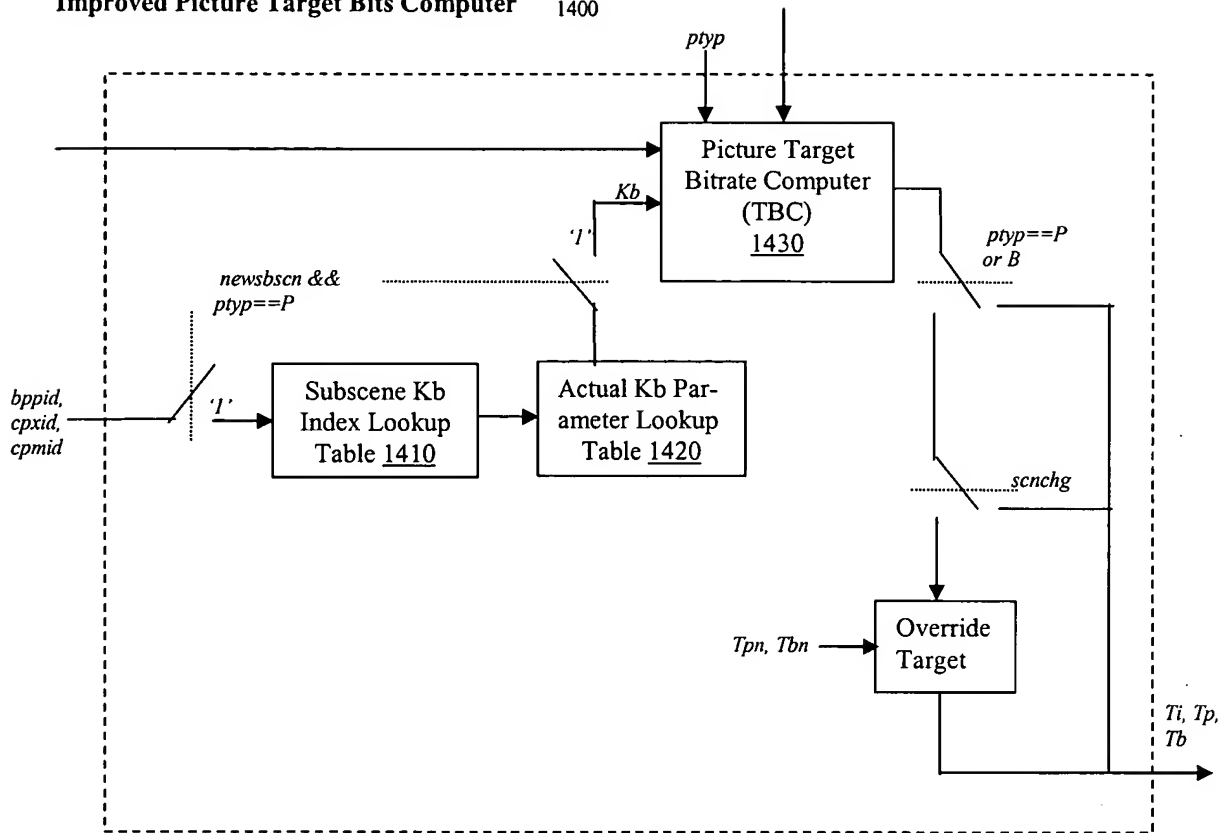


FIG. 14

KBID	0	1	2	3	4	5	6
	1.0250	1.2125	1.4000	1.5875	1.7500	1.9375	2.1250

FIG. 15A

CPMID=2

CPXID

BPPID

	0	1	2	3	4	5	6	7	8
0	2	2	2	3	3	3	4	4	4
1	2	2	2	2	3	3	3	4	4
2	2	2	2	2	2	3	3	3	4
3	2	2	2	2	2	2	3	3	3
4	2	2	2	2	2	2	2	3	3
5	2	2	2	2	2	2	2	2	3
6	1	2	2	2	2	2	2	2	2
7	1	1	2	2	2	2	2	2	2
8	1	1	1	2	2	2	2	2	2

CPMID=1

CPXID

BPPID

	0	1	2	3	4	5	6	7	8
0	2	2	2	2	2	3	3	3	3
1	2	2	2	2	2	2	3	3	3
2	2	2	2	2	2	2	2	3	3
3	2	2	2	2	2	2	2	2	3
4	2	2	2	2	2	2	2	2	2
5	1	2	2	2	2	2	2	2	2
6	1	1	2	2	2	2	2	2	2
7	1	1	1	2	2	2	2	2	2
8	1	1	1	1	2	2	2	2	2

FIG. 15B

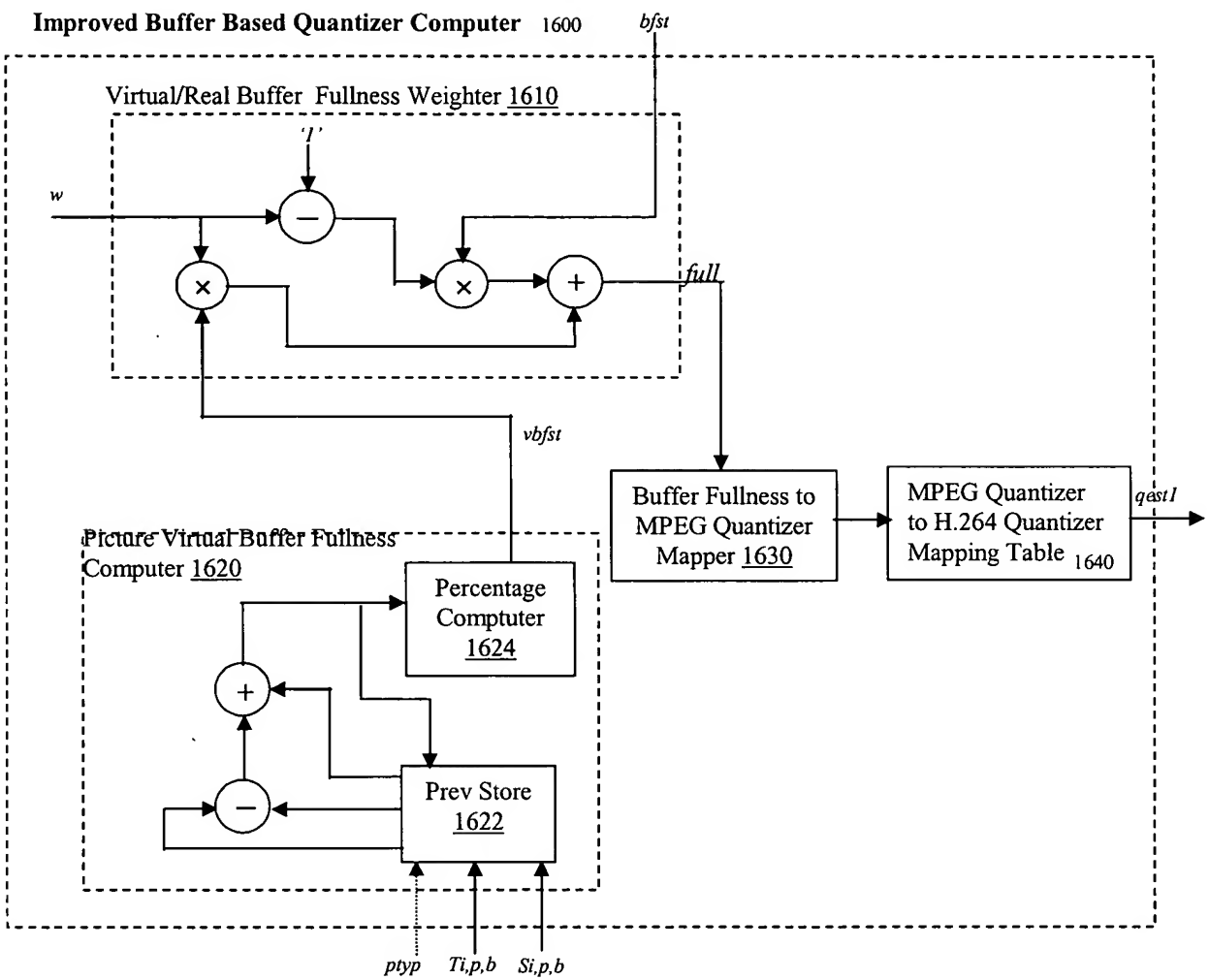


FIG. 16

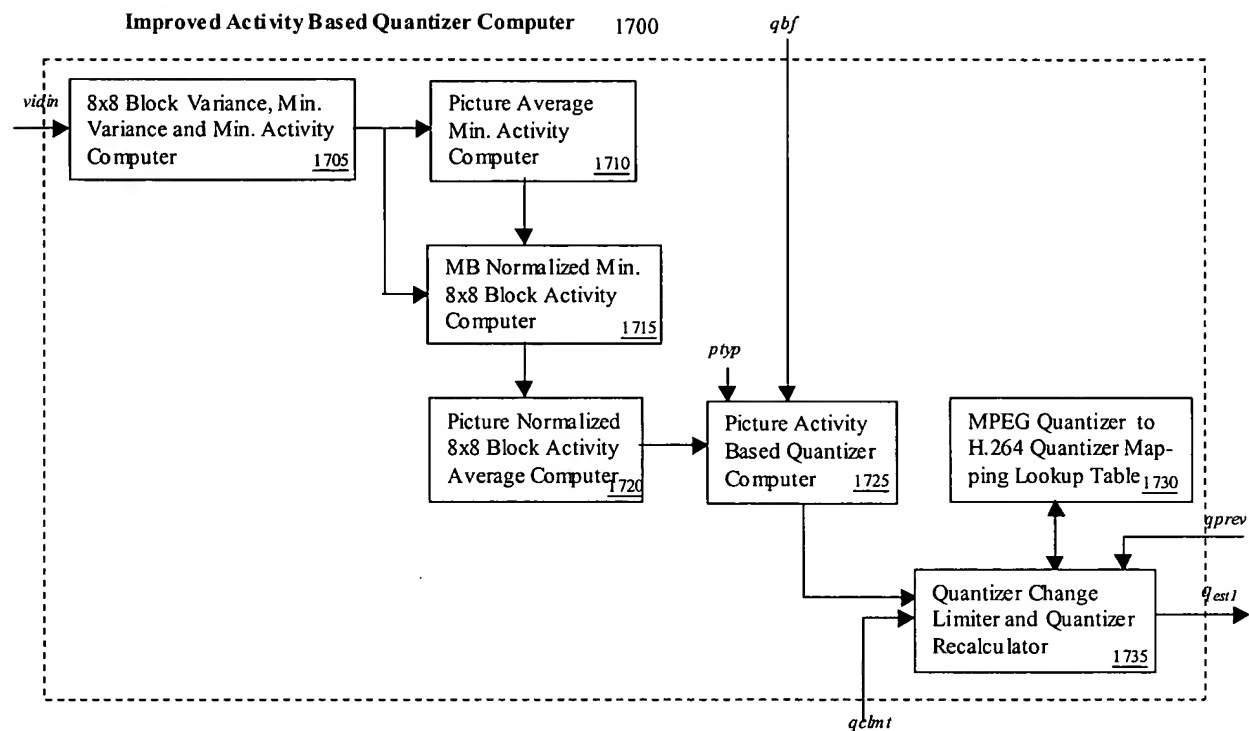


FIG. 17

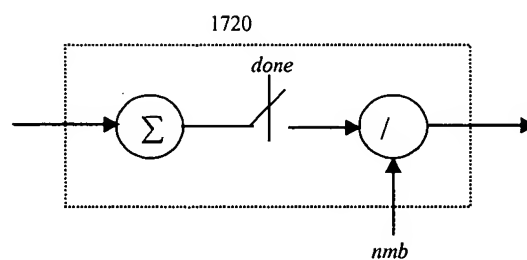


FIG. 18A

qh264												
0	1	2	3	4	5	6	7	8	9	10	11	12
.250	.281	.315	.353	.396	.446	.500	.561	.623	.707	.794	.891	1.00
13	14	15	16	17	18	19	20	21	22	23	24	25
1.12	1.26	1.41	1.59	1.78	2.00	2.25	2.52	2.82	3.18	3.56	4.00	4.49
26	27	28	29	30	31	32	33	34	35	36	37	38
5.04	5.65	6.35	7.13	8.00	8.98	10.08	11.31	12.70	14.25	16.00	17.96	20.16
39	40	41	42	43	44	45	46	47	48	49	50	51
22.63	25.39	28.51	32.00	35.92	40.31	45.25	50.80	57.02	64.00	71.83	80.64	90.51

FIG. 18B

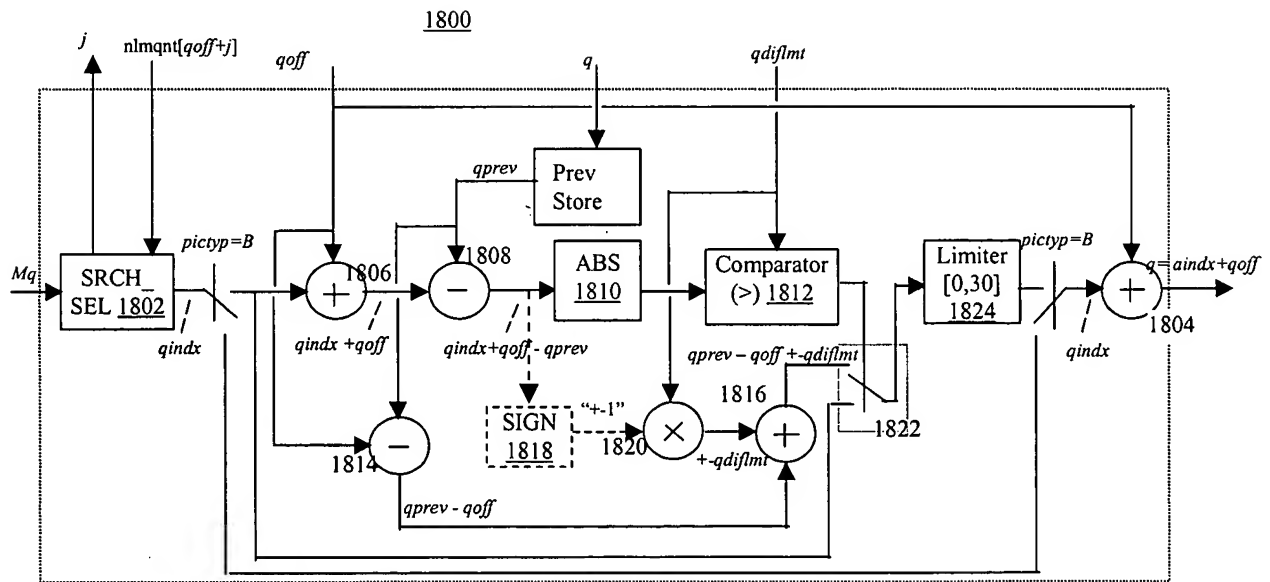


FIG. 18C

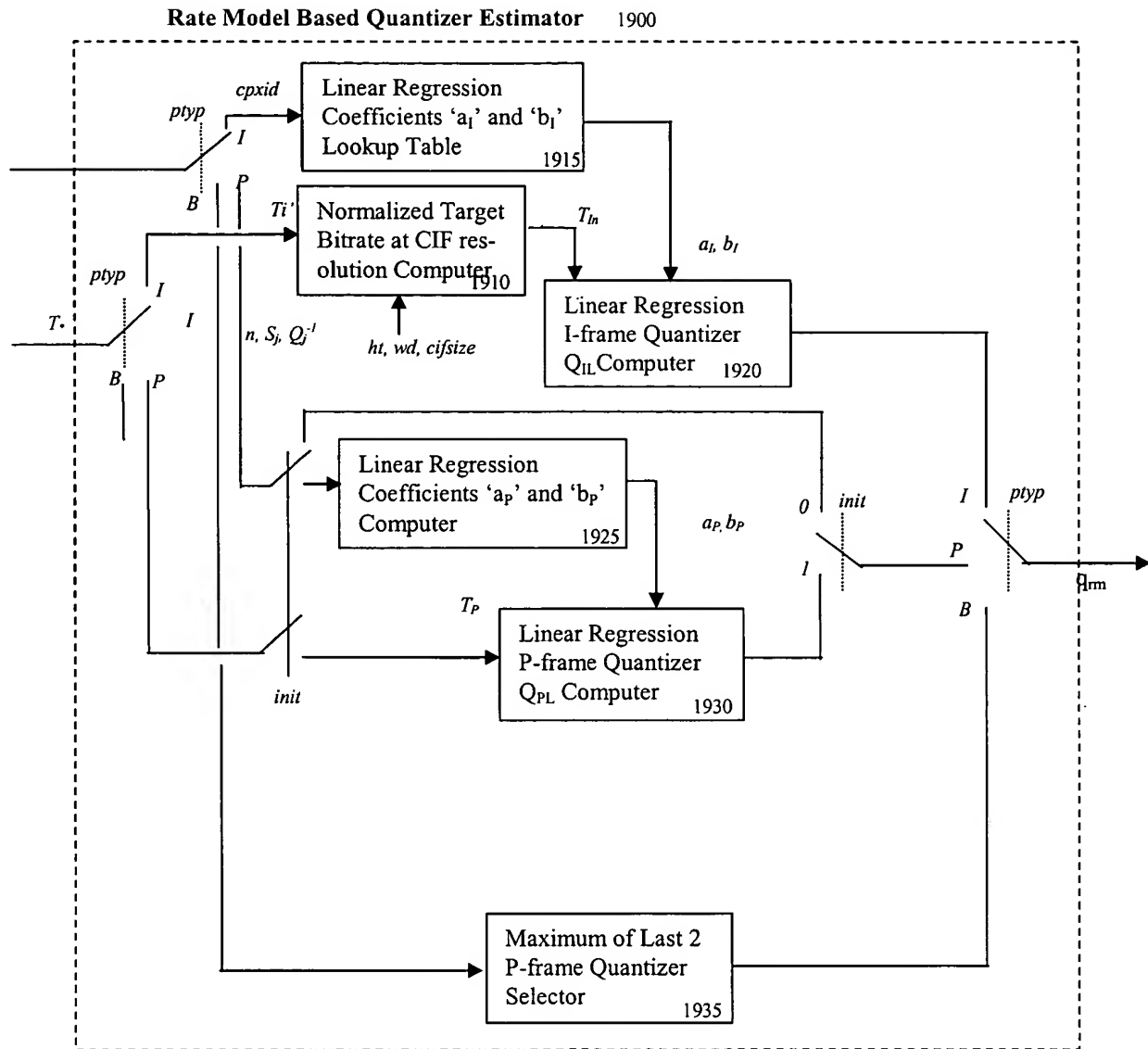


FIG. 19

CPID					
0	1	2	3	4	5
-68134.59213	-87003.98467	-106202.60465	-125401.23463	-133506.23620	-141558.73699
6	7	8	9	10	11
-149611.24778	-151588.19751	-220858.39744	-293963.81117	-254808.46319	-215653.11522
12	13	14	15	16	17
-207487.50918	-1993321.90315	-191155.48428	-182989.06541	-178235.75132	-169521.36854

FIG. 20A

CPID					
0	1	2	3	4	5
3313453.21342	3993567.19336	4565785.16255	5138003.13174	5715464.15501	6104194.66665
6	7	8	9	10	11
6492925.17829	6678722.15535	9084900.80067	11517856.77655	10611605.70466	9705354.63278
12	13	14	15	16	17
9777071.15962	9848787.68646	9920504.21330	9992220.74014	10623397.89991	11435042.39299

FIG. 20B

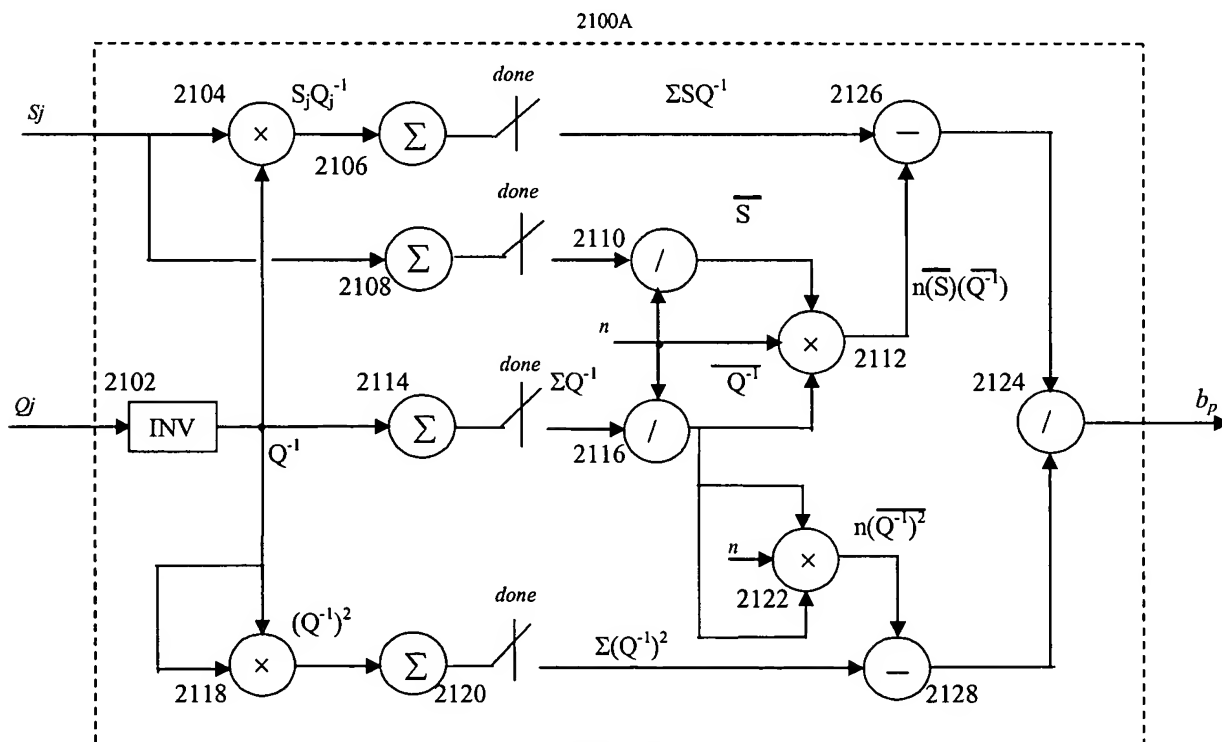
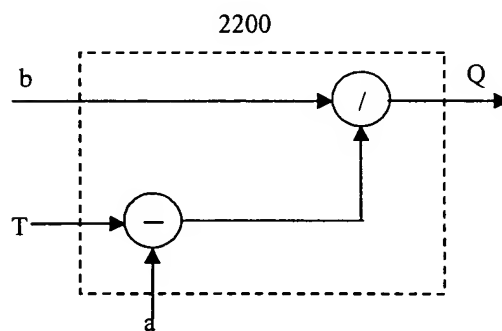
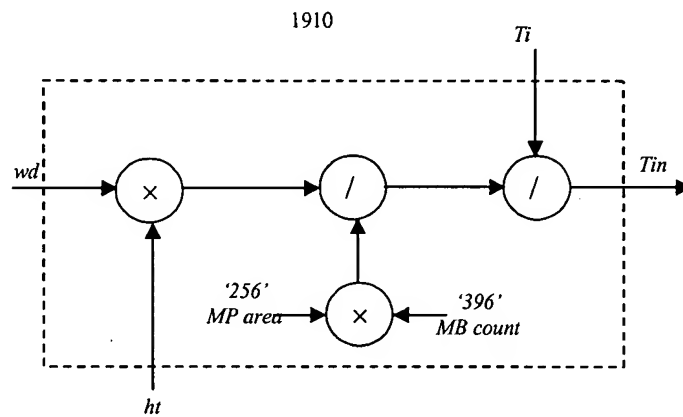
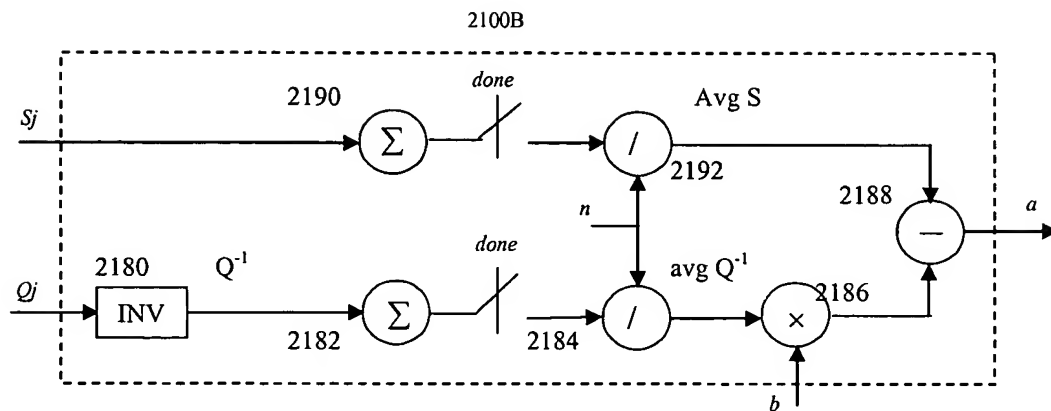


FIG. 21A



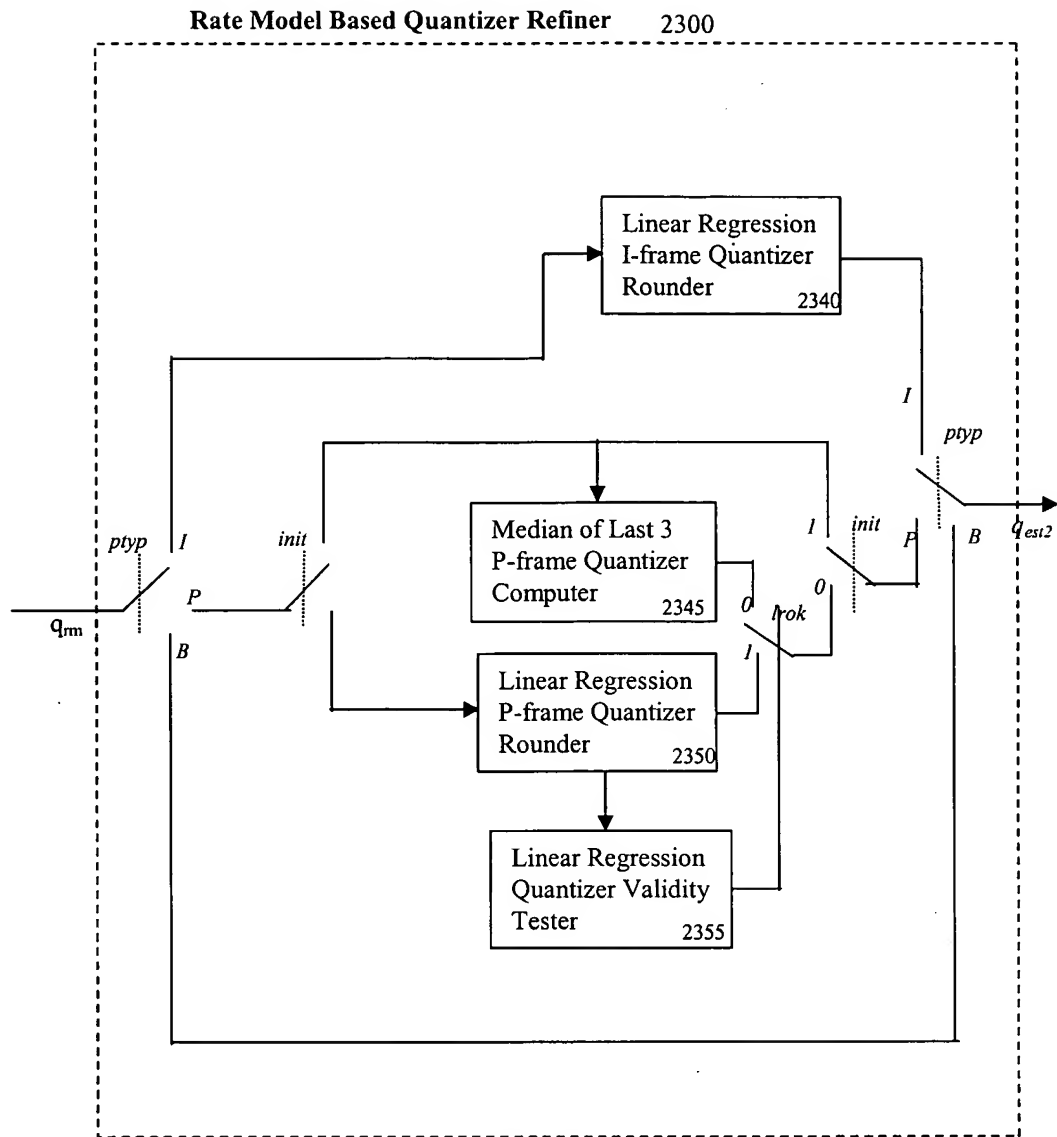


FIG. 23

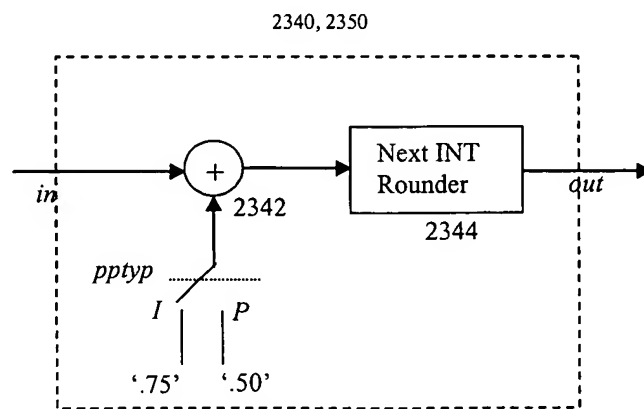
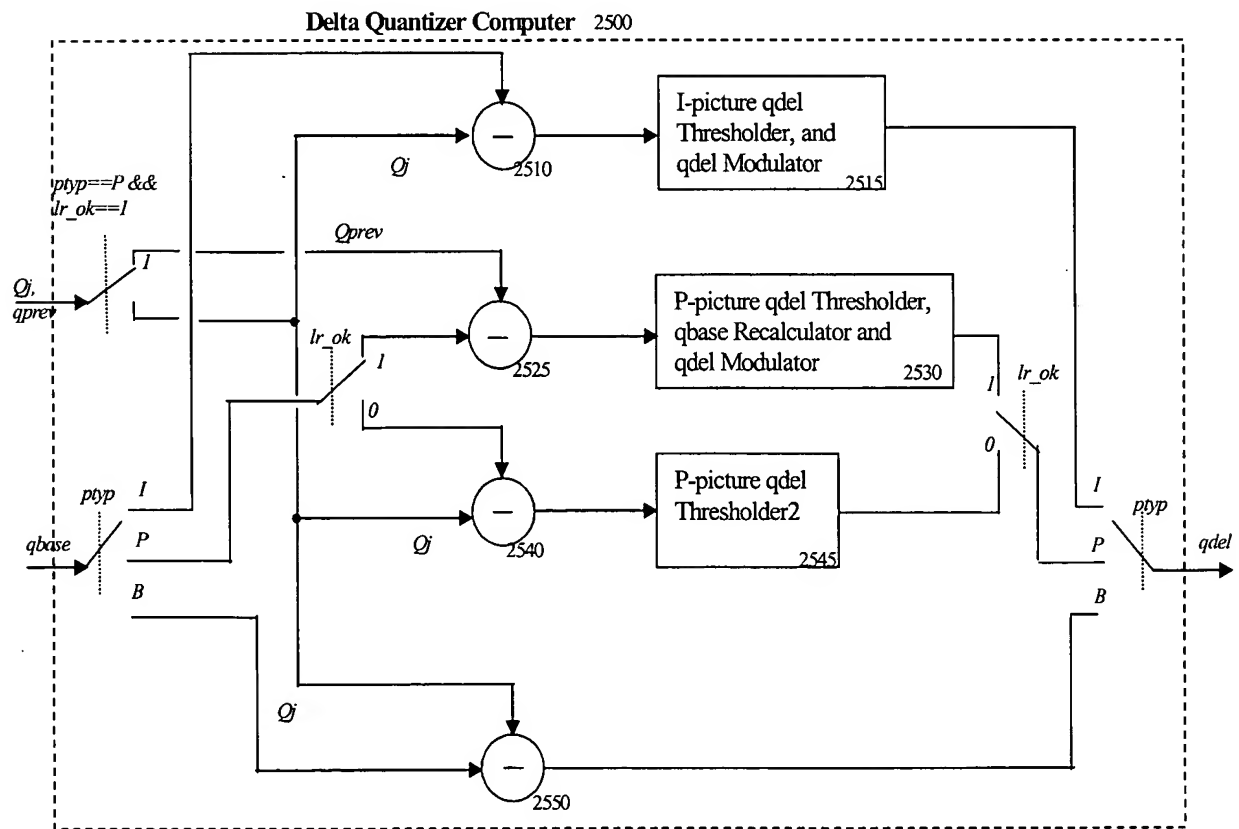
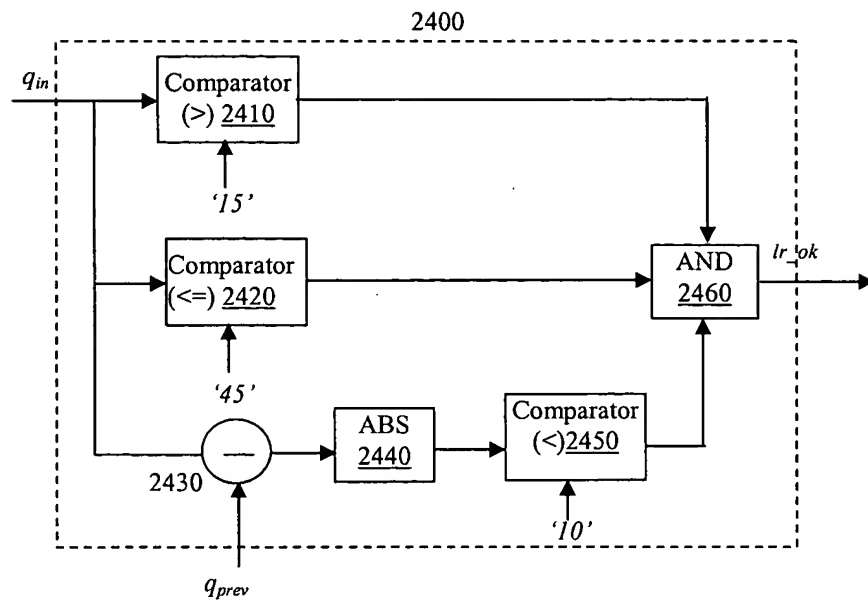


FIG. 24A



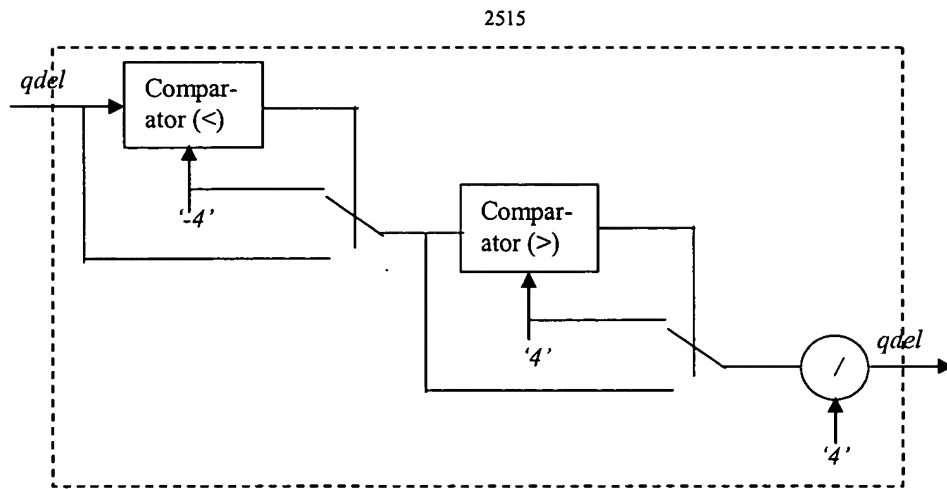


FIG. 26A

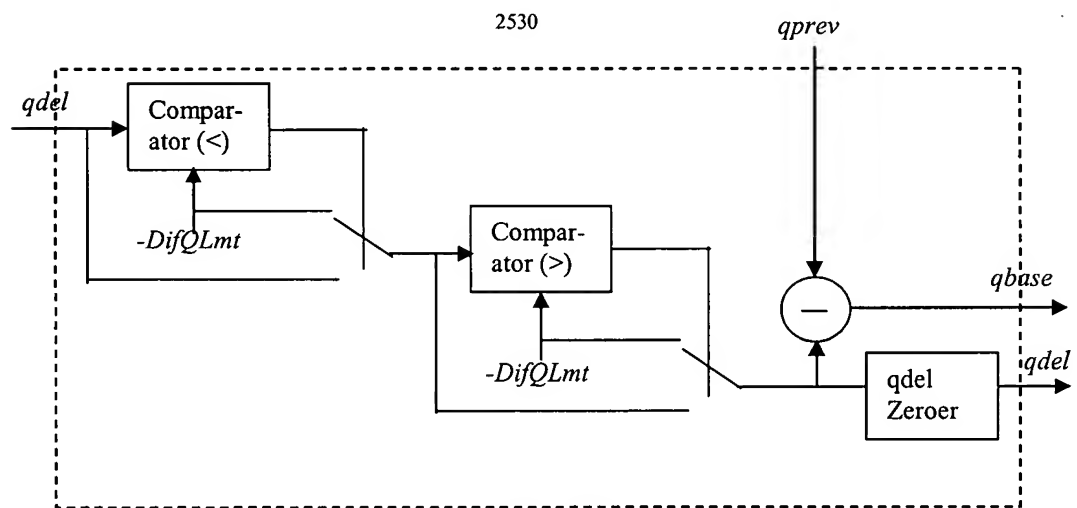


FIG. 26B

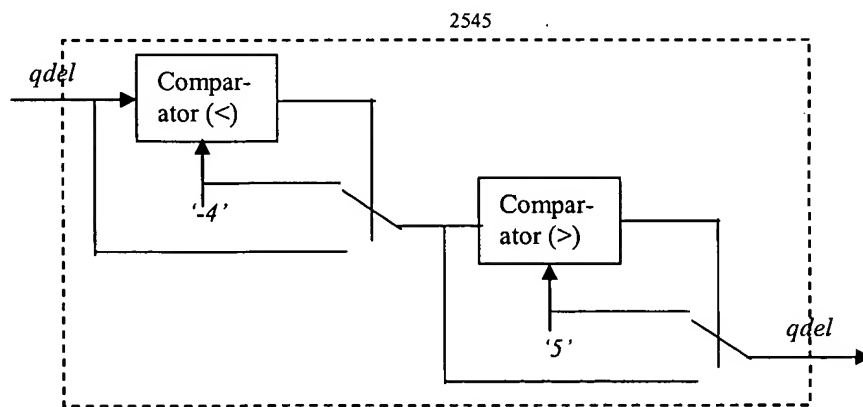


FIG. 26C

Rate and Quality Based Coding Enforcer 590/2710

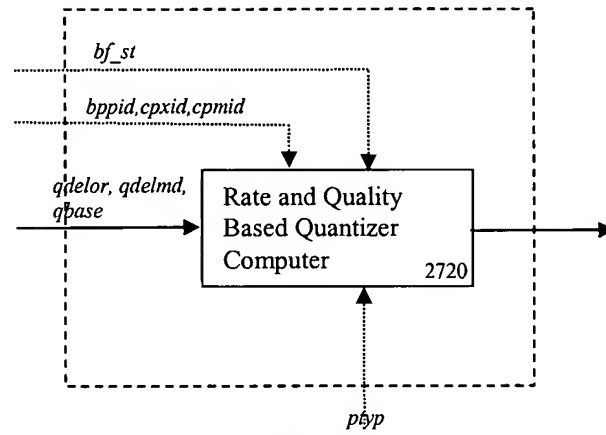


FIG. 27

Rate and Quality Based Quantizer Computer 2800

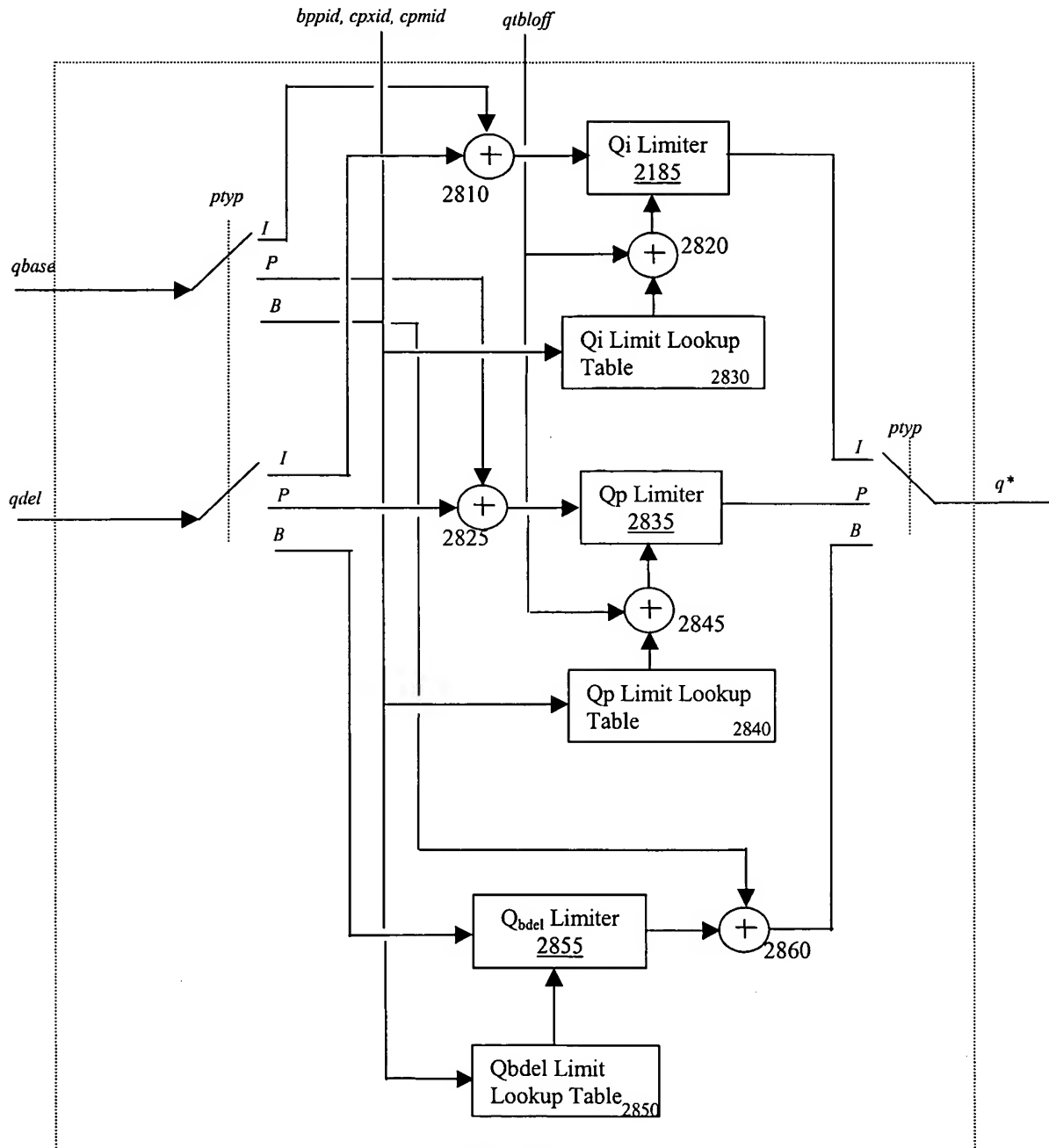


FIG. 28

		CPXID								
		0	1	2	3	4	5	6	7	8
BPPID	0	10	11	12	13	14	15	16	17	18
	1	9	10	11	12	13	14	15	16	17
	2	8	9	10	11	12	13	14	15	16
	3	7	8	9	10	11	12	13	14	15
	4	6	7	8	9	10	11	12	13	14
	5	5	6	7	8	9	10	11	12	13
	6	4	5	6	7	8	9	10	11	12
	7	3	4	5	6	7	8	9	10	11
	8	2	3	4	5	6	7	8	9	10

FIG. 29A

		CPXID								
		0	1	2	3	4	5	6	7	8
BPPID	0	10	11	12	13	14	15	16	17	18
	1	9	10	11	12	13	14	15	16	17
	2	8	9	10	11	12	13	14	15	16
	3	7	8	9	10	11	12	13	14	15
	4	6	7	8	9	10	11	12	13	14
	5	5	6	7	8	9	10	11	12	13
	6	4	5	6	7	8	9	10	11	12
	7	3	4	5	6	7	8	9	10	11
	8	2	3	4	5	6	7	8	9	10

FIG. 29B

		CPXID								
		0	1	2	3	4	5	6	7	8
BPPID	0	2	2	2	3	3	3	4	4	4
	1	1	2	2	2	3	3	3	4	4
	2	1	1	2	2	2	3	3	3	4
	3	1	1	1	2	2	2	3	3	3
	4	1	1	1	1	2	2	2	3	3
	5	0	1	1	1	2	2	2	2	3
	6	0	0	1	1	1	2	2	2	2
	7	0	0	0	1	1	1	2	2	2
	8	0	0	0	0	1	1	1	2	2

FIG. 29C

Rate and Quality Based Coding Enforcer 2

590/3000

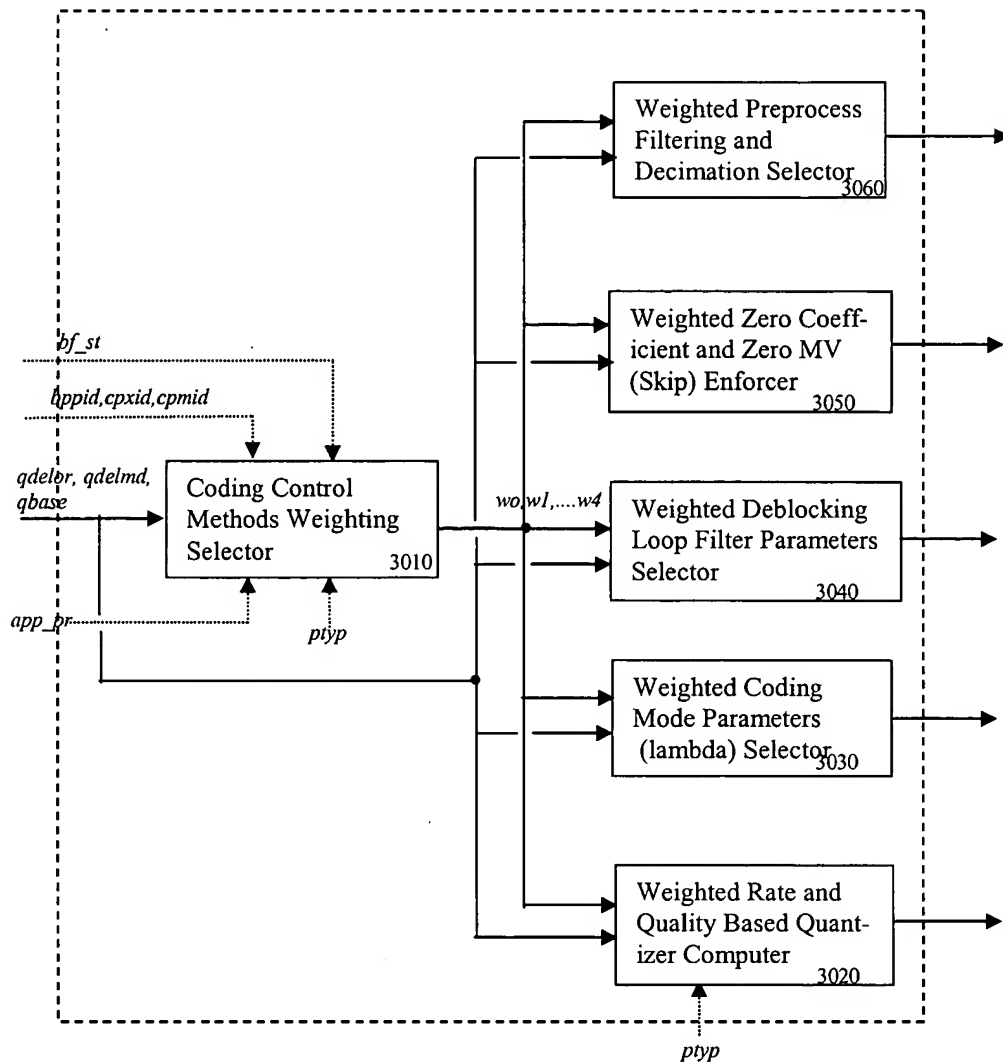


FIG. 30

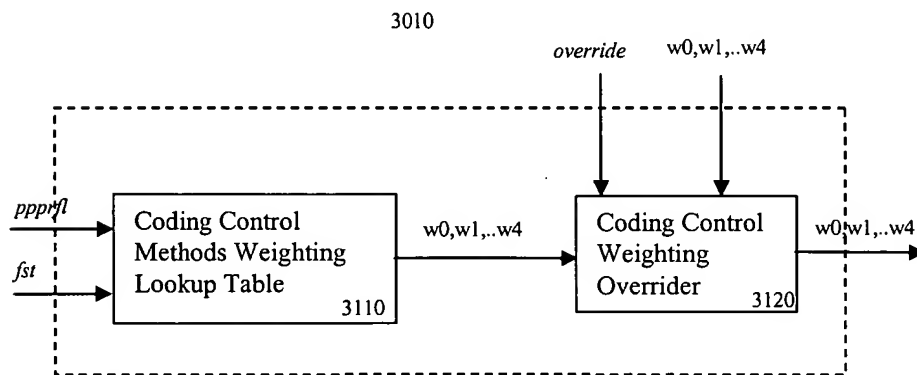


FIG. 31

		app_pr										
		0	1	2	3	4	5	6	7	8	9	
bfst	0	0.23	0.30	0.18	0.26	0.07	0.07	0.26	0.14	0.23	0.1	0.3
	1	0.11	0.48	0.25	0.03	0.23	0.15	0.19	0.12	0.27	0.08	0.34
	2	0.08	0.21	0.45	0.18	0.15	0.12	0.15	0.14	0.21	0.08	0.35
	3	0.44	0.39	0.07	0.09	0.31	0.45	0.28	0.11	0.23	0.09	0.29
	4	0.47	0.30	0.28	0.12	0.08	0.35	0.10	0.12	0.24	0.07	0.32
	5	0.44	0.37	0.10	0.30	0.29	0.15	0.41	0.13	0.2	0.08	
	6	0.20	0.47	0.38	0.22	0.44	0.27	0.27	0.1	0.22		
	7	0.10	0.12	0.47	0.27	0.10	0.09	0.22	0.11			
	8	0.30	0.22	0.49	0.46	0.18	0.49	0.47				
	9	0.11	0.44	0.07	0.03	0.36	0.09	0.35				

FIG. 32

Weighted Rate and Quality Based Quantizer Computer 3020

